

## REMARKS

Claims 1-3, 5-11, 13-17, 19, 22, 24-31, 33-38, 40-41 are currently active in the application. Claims 1, 5, 6, 7, 13, 19, 22, 26, 27, 33, 38, 40, 41 have been amended by the present amendment and claims 4, 12, 18, 20, 21, 23, 32 and 39 have been canceled. The Examiner respectfully requested to reconsider the application in view of the above amendments and following discussion.

Claims 19 and 21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication U.S. 2002/0154694 to Birch. This rejection is respectfully traversed.

The main idea of the present invention is to improve quality of edited area in a MPEG video signal by performing editing by the unit of one frame of the video data. Since P and B type frames need to refer to the most recently displayed or next I or P-frames, the question of quality of picture during editing is in elimination that dependency in brake points. The problems resolved by the present invention are related to helping in decoding of a B picture when concatenating point divides it from the previous GOP which is necessary for decoding and also helpful when the data to be edited is cut out from the middle of a GOP. The Applicant proposes to analyze a picture header in the area to be edited and determine the picture type and in case if a head frame is a B picture to create a new GOP based on the reference frame information. In an image data analyzer determines that a second GOP next to a first GOP to which a start point of an editing target area belongs is not a closed GOP, an image coder converts the second GOP into a closed GOP by converting frames in the editing target area between an I picture at a head of the second GOP and a P picture such that the second GOP includes no B picture. This way the editing area is going to be seamless and not notable for a viewer.

The Examiner rejects the method claims 19 and 21 of the present application, stating that the method proposed by the Applicant is shown by Birch. Applicant respectfully disagrees. The Publication to Birch discloses a bit stream splicer for splicing two video bit streams that have been encoded according to the

MPEG-2 standard. Birch intends to develop a splicer which capable of producing seamless or undetectable splices and proposes several ways to do that. The Examiner specifically refers to paragraphs [0224, 0226, 0227] in Birch. However, Birch does not show the method disclosed and claimed by the Applicant. For instance, in paragraph [0227] Birch describes his approach as follows, "If the splice point in new transport stream 1403 separates B-picture from I and P pictures which contain the information needed to decode the B pictures, then the initial B-pictures after the IN point which may reference unavailable data from a previous GOP are replaced by a still-frame repeat of the last I picture before the IN point and synthetic coded B-pictures which referenced only the repeat of the pictures." (Emphasis added) In contrast, the Applicant in Figure 7 shows that in an analogical situation instead of initial B-pictures B1 and B2, are created two independent closed GOPs: GOP2-1 and GOP2-2 which have single frames I1 recompressed from B1 and B2 pictures. Please respectfully note, that the I1 frame of the newly created GOPs is not a copy of the any I-picture, as the Examiner states. The I1 frame is created by recompressing B1 or B2 frames. However, Birch replaces B-picture with a still-frame repeat of the last I picture or a synthetically coded B-picture. Furthermore, Birch replaces a single frame with a single frame, when the Applicant replaces a single frame with a new GOP, creating a head of GOP and recompressing B-picture into I-picture. This helps to produce a better image after editing. All the above discussed distinguishable features of the present invention are clearly presented in the claims, for example claim 19 states that, "... converting a portion near the head of the editing target area into the closed group in a case where said determining determines that the head group is not the closed group." (Emphasis added) It means that the Applicant takes a portion near the head of the editing target or a single frame and converts it into a closed GOP. The publication to Birch does not show or suggest that. Furthermore, Figures 10A to 10F showing schematic diagrams of basic patterns of editing MPEG video data, the Applicant presents very distinguishable feature of the present invention of not including B picture between an I picture at a head of

the second GOP and a P picture. In order to emphasize this feature claims 1, 5, 6, 7, 13, 19, 22, 26, 27, 33, 38, 40, 41 have been amended and claims 4, 12, 18, 20, 21, 23, 32 and 39 have been canceled. Specifically, claim 1 now recites,

“An image editing apparatus which edits image data which has been coded in accordance with an image coding method, ...

and wherein in a case where said image data analyzer determines that a second GOP next to a first GOP to which a start point of an editing target area belongs is not a closed GOP, said image coder converts the second GOP into a closed GOP by converting frames in the editing target area between an I picture at a head of the second GOP and a P picture such that the second GOP includes no B picture.” (Emphasis added)

It should be respectfully noted that the underlined portion above is a feature which none of the cited references discloses. Therefore, it is respectfully submitted that this feature will clarify difference between the present invention and cited references.

Claims 1 to 18, 20 and 21 to 41 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the publication to Birch in view of patent to Wee et al. (U.S. Patent 6,104,441). This rejection is respectfully traversed.

The publication to Birch has been distinguished above. The Examiner relies on patent to Wee et al. as showing the decoding of the B-frames and re-encoding B-frames into an image frame which is able to be decoded without referring to an image frame included in a group which is arranged before the head group. Specifically, the Examiner refers to the paragraph in column 5, lines 25 to 47, as showing a process analogical to the claimed by the Applicant. The Applicant is respectfully disagrees and points out to the Examiner that Wee et al. in her approach modifies dependencies of frames, so that the particular frame can be reordered or otherwise combined with different images or image sequences. Additionally, in claim 7 of Wee et al. it is clearly stated that, “...conversion of a B frame to a B frame having no dependence upon data from future frames, such that

the B frame as converted only depends upon one or more prior frames in the sequence of data, and conversion of a B frame to a B frame having no dependence upon data from prior frames, such that the B frame as converted only depends upon one or more future frames.” Applicant again reminds to the Examiner that the present invention in order to eliminate dependency creates a new closed GOP which is created by re-compression of a dependent frame B or P into an I-frame. The patent to Wee et al. does not show such approach. In making the rejection, the Examiner attempts to combine a data analyzer of Birch with decoding of the B-frames of Wee et al. As it was discussed above this combination cannot result on the claimed invention since neither reference shows a creation of new GOPs instead of dependent frames. Applicant specifically, refers to claim 1 which states, “...in a case where said image data analyzer determines that the head group is not the closed group, said image coder converts a portion near the head of the editing target area into the closed group ...and wherein in a case where said image data analyzer determines that a second GOP next to a first GOP to which a start point of an editing target area belongs is not a closed GOP, said image coder converts the second GOP into a closed GOP by converting frames in the editing target area between an I picture at a head of the second GOP and a P picture such that the second GOP includes no B picture.” (Emphasis added)

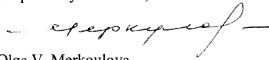
Applicant respectfully submits that the combination of Birch and Wee et al. fails to show the claimed invention wherein the editing target area between an I picture at a head of the second GOP and a P picture such that the second GOP includes no B picture.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1-3, 5-11, 13-17, 19, 24-31, 33-38, 40-41 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson, P.C.).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'O. Merkoulouva', followed by a horizontal line.

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